

(19)



JAPANESE PATENT OFFICE

PATENT ABSTRACTS OF JAPAN

(11) Publication number: **2001313391 A**

(43) Date of publication of application: 09.11.01

(51) Int. Cl.
H01L 29/78
H01L 29/06
H01L 29/872
H01L 29/861

(21) Application number: **2000132252**

(22) Date of filing: **01.05.00**

(71) Applicant: **FUJI ELECTRIC CO LTD**

(72) Inventor:
ONISHI YASUHIKO
FUJIHIRA TATSUHIKO
IWAMOTO SUSUMU
SATO TAKAHIRO

(54) **SEMICONDUCTOR DEVICE**

hot carriers into the gate insulation film is restrained.

(57) Abstract:

COPYRIGHT: (C)2001,JPO

PROBLEM TO BE SOLVED: To provide a superjunction semiconductor device, which can be suppressed on the injection of hot carriers into an insulation film and which has no deterioration in characteristics in an element active region and no impairment in reliability.

SOLUTION: In the superjunction semiconductor device, provided with a drain/drift section 22 of a parallel p-n structure, in the parts of a p-type partition regions 22b which are under wells of p-type base regions 13, p-type withstand voltage limiter regions 30 having a high impurity concentration are formed. In off-state, the voltage reaches the critical voltage earlier in the central part of the withstand voltage limiter regions 30 than that at an E point directly below a gate insulation film. As a result, a surface electric field is reduced at the E point, and injection of

